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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/729,743	12/06/2000	Steven B. Bridgers	P-5200-01-00	7935

7590 08/30/2002

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EXAMINER	
FERGUSON, MICHAEL P	
ART UNIT	PAPER NUMBER
3679	

DATE MAILED: 08/30/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Interview Summary	Application No.	Applicant(s)	
	09/729,743	BRIDGERS, STEVEN B.	
	Examiner	Art Unit	
	Michael P. Ferguson	3679	

All participants (applicant, applicant's representative, PTO personnel):

(1) *Michael P. Ferguson*. (3)*Steven B. Bridgers*.

(2) *Lynne H. Browne*. (4)_____.

Date of Interview: *27 August 2002* .

Type: a)☐ Telephonic b)☐ Video Conference
c)☒ Personal [copy given to: 1)☒ applicant 2)☐ applicant's representative]

Exhibit shown or demonstration conducted: d)☒ Yes e)☐ No.
If Yes, brief description: *model of nodal structure* .

Claim(s) discussed: *1* .

Identification of prior art discussed: _____ .

Agreement with respect to the claims f)☐ was reached. g)☒ was not reached. h)☐ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: *See Continuation Sheet* .

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

i)☐ It is not necessary for applicant to provide a separate record of the substance of the interview(if box is checked).

Unless the paragraph above has been checked, THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN ONE MONTH FROM THIS INTERVIEW DATE TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

LYNNE H. BROWNE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3620

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.

Examiner's signature, if required

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record
A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews
Paragraph (b)
In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.
All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:
- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case unless both applicant and examiner agree that the examiner will record same. Where the examiner agrees to record the substance of the interview, or when it is adequately recorded on the Form or in an attachment to the Form, the examiner should check the appropriate box at the bottom of the Form which informs the applicant that the submission of a separate record of the substance of the interview as a supplement to the Form is not required.

It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:
1) A brief description of the nature of any exhibit shown or any demonstration conducted,
2) an identification of the claims discussed,
3) an identification of the specific prior art discussed,
4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
5) a brief identification of the general thrust of the principal arguments presented to the examiner,
   (The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
6) a general indication of any other pertinent matters discussed, and
7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

Continuation of Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments:

Examiner suggesed applicant amend claim 1 to include more structural limitations for the spring connection between the strut and the nodal body, including that of the spring being inserted into the nodal body at one end and connected to the strut at the other end, the spring bending and stretching to provide universal relative movement between the nodal bodies. The applicant proposed adding functional limitations of the nodal structure being capable of being actuated from that of a 2-D structure to a 3-D structure. Examiner indicated that such functional limitations would be supported by the specification of the instant application.

Applicant discussed further modifications of the invention for different applicaions (chemical and electromagnetic actuation means). Examiner indicated that such modifications would be new matter not supported by the specification of the instant application and suggested that if applicant wants to pursue these modifications he would have to file new applications.

INTR NEW ATTACHMENT

The Inter Nodal Connector Architecture (**INCA**) is a new architectural paradigm based upon a revolutionary new structural element whose simplicity gives rise to a very large number of practical applications. This INCA unit or to use a more descriptive appellation, this 'smart patch connector' consists of a central sphere from which emanate three symmetrically placed cylindrical 'arms', each one, originally pointing in the radial direction of the point of contact. In other words, each arm is, in its default position, orthogonal to the tangential plane at the point of contact.

The nucleus sphere can be embedded with various types of sensor devices and/or it can be the spherical shell that houses a spherical magnet of smaller radius which can be remotely controlled to spin at a precise frequency and thus emit a magnetic field with desired characteristics.

Each of the arms is a hollow, cylindrical, telescoping tube. These arms are attached to the nucleus sphere by means of spirally coiled springs. This, of course, makes the arms flexible. They can be bent to point in various directions and then made rigid by a locking device if desired. Several of these smart patch connectors can be joined together to form any of the five regular platonic polyhedrons and most other polyhedra such as those shapes assumed by various different types of molecules.

The arms can carry electronic signal lines and thus be remotely controlled. Another possibility is that two of the arms carry different chemicals or different types of light that are mixed by forcing them both to be emitted via the third arm.

This INCA architecture can be used to build structures of almost any size ranging from the gigantic to the microscopic. The following paragraphs will describe a few of the many possibilities. After reading these the reader will, no doubt, be able to come up with her or his own novel applications.

Large antennae built to operate in space, if made with smart patch connectors could be assembled on earth and then compressed into an essentially flat package for transport to its position or orbit in space. Once at the proper space coordinates it could be remotely activated to assume the original shape, thus removing the difficulties associated with transporting oddly shaped structures over large aerial distances. Also because of the flexibility of the connectors the structures would be essentially shock proof while regularly functioning in space. One can even envision , using the smart patch material described below, the possibility of making shape shifting radio frequency antenna whose shape can be "focused' into the appropriate form for receiving various types of signals.

Collapsible pop up structures such as bridges and tents that can be easily stored and transported and which can be quickly erected or collapsed can be built using the INCA technology.

A 'smart fabric' of sorts can be weaved from micro small connectors to have desired thermal, electrical, magnetic and visual properties that can be worn as armor or as a

means of camouflaging individuals or equipment.

Using the above smart fabric concept; there are various medical and biological applications that can be manufactured. For example, a nerve gas antidote (such as atropine) or an anthrax neutralizer (such as hydrogen peroxide) could be enveloped within one layer of a garment. The proper amount of the antidote or neutralizer would be automatically dispensed when the debilitating agent is detected by built in biosensors.

Sensors which monitor vital physical properties, could also be built int 0o the smart patch fabric. Using the smart patch material one could have a wearable antenna or broadcasting device to enhance radio communication.

Polystyrene connectors could be made with actuating circuits printed on the connectors to make them capable of radio controlled electronic self assembly of complex systems on the micro or nano scale. These will be capable of remote manipulation for varied effects and purposes via computer controlled signals.

A radio frequency responsive connector element that mimics the basic natural movements (walking, crawling, swimming) could be manufactured on several scales. These elements would be responsive to signals in the kilohertz to megahertz range of common broadcast carriers. By properly seeding or doping the spring elements with electronically responsive material (e.g. germanium, tantalum, gallium arsenides, indium, quartz, and like materials presently used in the integrated circuit manufacturing process) it would be possible to manipulate the spring elements and consequently the arms of the connectors by remote radio control. These units could then effect actual movement such as torque actuation, extension, retraction, twisting , turning , radial bending , constriction and expansion.